



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,158	05/24/2001	Peng Yin	9432-000137	2810

27572 7590 11/05/2004

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER

ADAMS, JONATHAN R

ART UNIT PAPER NUMBER

2134

DATE MAILED: 11/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/865,158

**Applicant(s)**

YIN ET AL.

**Examiner**

Jonathan R Adams

**Art Unit**

2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 rejected under 35 U.S.C. 102(b) as being anticipated by Cox et al., US Patent No 5991426 (hereafter referred to as '426).

As to claim(s) 1:

3. '426 teaches a watermark insertion/extraction system using interleaved watermarks comprising:

- Extracting at least one feature from digital content / input frame based mpeg stream (Fig 5, Element 302, '426)
- Constructing a first watermark from extracted feature / Positive watermark (Fig 5, Element 310a, '426)
- Constructing a second watermark from extracted feature / Negative Watermark (Fig 5, Element 310b, '426)
- Embedding first watermark within second watermark forming dual component watermark / Embedding dual component watermark in digital content / Positive and negative watermark signals are interlaced to generate field based watermarked signal (Col 5, Lines 1-6, '426)

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3 rejected under 35 U.S.C. 103(a) as being unpatentable over '426 in view of Perry, US Pub No 2002/0012445 (hereafter referred to as '445).

As to claim(s) 2, 3

6. '426 teaches a watermark insertion system using interleaved watermarks. '426 does not teach for the watermarks to be constructed by hashing the extracted feature. '445 teaches a watermarking system a cryptographically hashed image data combined with a secret decoding key (Page 7, Paragraph 0079, '445). It would have been obvious to a person of ordinary skill in the art at the time of invention to use the hashed watermarks and secret decoding key with the watermark insertion system of '426. One of ordinary skill in the art would have been motivated to use the hashed watermarks and secret decoding key with the watermark insertion system of '426 because cryptographic hashes provide a high level of security making embedded data more secure.

7. Claims 4, 5 rejected under 35 U.S.C. 103(a) as being unpatentable over '426 in view of '445 in further view of Schneier, "Applied Cryptography".

As to claim(s) 4, 5:

Art Unit: 2134

8. '426 as modified above teaches watermark insertion system using interleaved watermarks based on cryptographically hashed image data combined with a secret decoding key. '426 as modified above does not teach the hash to be encrypted using a private key. Schneier teaches encrypting hashed data using a private key for authentication purposes (Page 38, Line 30 et seq., Schneier). It would have been obvious to a person of ordinary skill in the art at the time of invention to encrypt the hashed data with a private key as taught by Schneier in the invention of '426 as modified above. One of ordinary skill in the art would have been motivated to encrypt the hashed data with a private key as taught by Schneier in the invention of '426 as modified above because using private key encrypted hashes provides added authentication functionality while reducing delays of other private key signing schemes.

9. Claim 6-12, 14-18 rejected under 35 U.S.C. 103(a) as being unpatentable over '426 in view of '445 in view of Weiss, "Watermarking MPEG Video".

As to claim(s) 6-8, 10:

10. '426 as modified above teaches a watermark insertion system using interleaved watermarks constructed by hashing the extracted feature. '426 as modified above does not teach for extracting to be performed by obtaining an intensity value associated with at least one pixel. Weiss teaches an MPEG digital video watermarking system where watermarks are applied to Intensity channel I-frames and P-frames consisting of intra-coded macroblocks using a zero mean formula ("Watermarking Technique", Page 4, Weiss). It would have been obvious to a person of ordinary skill in the art at the time of

Art Unit: 2134

invention to use the MPEG watermarking system taught by Weiss with the dual interleaved watermark invention of '426. One of ordinary skill in the art would have been motivated to use the MPEG watermarking system taught by Weiss with the dual interleaved watermark insertion invention of '426 because the combination/modification provides a beneficial implementation for MPEG watermarking security.

As to claim(s) 9:

Digital content is MPEG video extracting is performed by extracting a feature from group-of-pictures information / I-frames are taken from the group-of-pictures MPEG video sequence (Page 3, Paragraph 2, Weiss)

As to claim(s) 11:

First watermark is embedded within second watermark using block-based spread spectrum technique / Our technique uses a spread spectrum technique of encoding watermark (Page 1, Line 4, Weiss)

As to claim(s) 12:

Digital content is MPEG video organized into groups wherein first watermark contains group index information to detect temporal jittering / Group sequences contain indexes and are included in watermarked data to compensate for temporal shifting/jittering ("Temporal Shifts and Attacks", Page 13-14, Weiss)

Art Unit: 2134

As to claim(s) 14:

Digital content is MPEG video organized into frames, groups and blocks wherein first watermark component includes frame level, block level and group level information / frames, blocks and groups ("MPEG Compression", Page 2, Weiss)

As to claim(s) 15:

Dual component watermarks classify attacks to digital content to multiple attacks according to multiple categories / technique robust against several attacks (listed) (Page 2, Line 10, Weiss)

As to claim(s) 16:

One category is temporal jittering / Temporal Shifts and Attacks (Page 13, Weiss)

As to claim(s) 17:

One category is content modification / scaling, cropping, compression, and blurring (Page 2, Line 10, Weiss)


As to claim(s) 18:

One category is a counterfeiting attack / Embedded data more secure against counterfeiters (Page 2, Paragraph 0017, '445)

Art Unit: 2134

11. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over '426 in view of Weiss in further view of Conover et al., US Patent No. 6373960 (hereafter referred to as '960)

As to claim(s) 13:

12. '426 as modified above teaches an MPEG watermarking system using interleaved watermarks to prevent certain types of attacks. '426 as modified above does not teach to include time code information in the watermarking procedure. '960 teaches a designated time code for use in watermarking. It would have been obvious to a person of ordinary skill in the art at the time of invention to use the time code as in '960 with the invention of '426 as modified above. One of ordinary skill in the art would have been motivated to use the time code as in '960 with the invention of '426 as modified above because using the time code as in '960 would further prevent collision. 

### ***Conclusion***

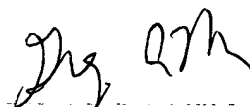
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R Adams whose telephone number is (571)272-3832. The examiner can normally be reached on Monday – Friday from 10am to 6pm.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse, can be reached on (703) 308-4789. The fax phone number for the organization where this application or proceeding is assigned is (571)272-3838.



Art Unit: 2134

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

A handwritten signature in black ink, appearing to read 'G. Morse' or similar, located above the printed name.

GREGORY MORSE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100